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Interest of intra-aortic ultrasound imaging during transcatheter aortic valve implantation

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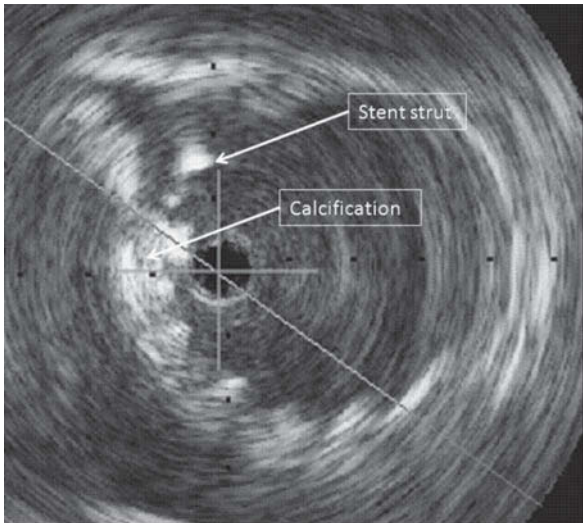
Background: Information from imaging techniques is determinant for successful transcatheter aortic valve implantation (TAVI). The feasibility and utility of Intra-aortic ultrasound (IAUS) to provide complementary information on top of angiography and trans-oesophageal echocardiography have never been reported.

Methods: In consecutive patients undergoing TAVI in a single university centre, IAUS was performed before and after balloon angioplasty and after TAVI. We assessed off-line the dimensions of the aortic annulus, the extent of calcification and localisation in relation to the coronary ostia, the quality of valve deployment and positioning, and compared to angiographic and intra-oesophageal data.

Results: 14 patients underwent TAVI with IAUS; 6 apical and 8 femoral approach. IAUS was feasible in all patients. On average, each IAUS run lasted 90 seconds. No complications were observed related to IAUS. All 23 runs were suitable for analysis; 4 baseline, 8 after balloon, 11 after TAVI. Relevant information provided by IAUS pre-procedure included annulus diameter, presence of extensive calcifications and their position close to a coronary ostium. Post-balloon, IAUS made it possible to assess sigmoid mobility. After TAVI, the diameter, area and symmetry of the prosthesis could be measured and in 1 patient who had had balloon post-dilatation for aortic insufficiency, an increase in stent was visible by IAUS.

Conclusion: IAUS appears to be safe and feasible during TAVI and provides additional information on top of angiography and echography. The clinical value of the incremental information provided by IAUS remains to be determined.



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Transcatheter aortic valve implantation with the Edwards valve prosthesis in patients with contra-indication to surgery but low (<20%) logistic Euroscore: results of the Rouen registry

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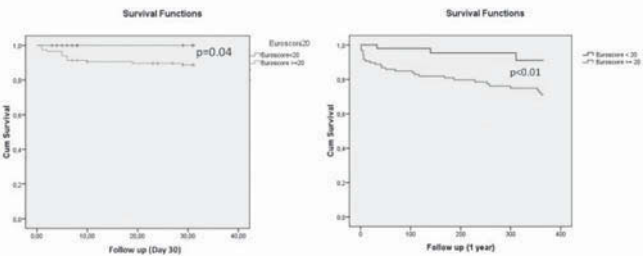
Background: Transcatheter aortic valve implantation (TAVI) is performed in a number of pts with a Log ES<20% due to comorbidities not included in the calculation of the Log ES but increasing the risk of AVR. The TAVI results in this sugroup of "lower risk" patients needed to be assessed.

Population and Methods: We retrospectively analysed 177 consecutive Edwards balloon expandable TAVI patients included between May 2006 and January 2011 in our center, and compared the clinical characeristics and results at 30 days and 1 year of two groups according to the Log.ES<20% (Low risk: LR): n=60 (34%), or ≥20% (High risk: HR): n=117 (66%). The transfemoral approach was used in 128 (72.3%).

Results:

Mean Log ES was 11.9±4.9% and 32.2 ±10.3% in the LR and HR groups respectively. Mediastinal radiotherapy (20%) and porcelain aorta (15%) were the dominant inclusion factors in the LS group. Patients in the LR group were younger (80±9 vs 84±5 years, p = 0.003), more often female (70% vs 43.6%, p = 0.001), with previous stroke (3.3% vs 17.9%, p=0.004) or CABG (5% vs 33.3%, p<0.001). There was no significant difference in NYHA class, presence of chronic respiratory failure, diabetes, or pre-existent conductive disorders. Procedural success was 100% vs 95.3% (p=0.1) in the LR and HR group respectively. There was no significant difference in major vascular complications (5 vs 6%), major acute stroke (3.7 vs 4.4%), permanent pace maker (5 vs 6%) but less AKI class ≥ 2 (0% vs 6%, p=0.003) or life-threatening bleeding (5% vs 19.7%, p=0.03) in the LR vs HR groups and a better safety end point (6.8% vs 18.6%, p=0.02) and survival at 30-day (0% vs 11.1%, p<0.04) and 1 year (5 vs 24.8%, p<0.01) in the LR group.

Conclusions: In patients with contra-indication to surgery but low Log ES (<20%), TAVI is associated with similarly good procedural success and better safety end point and mortality rates at 30-Day (0%) and 1 year (5%) than in the regular high risk population.



Survival in LR and HR groups

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Lipoprotein-associated phospholipase A2 levels are influenced by cardiac disease, comorbidities, extension of atherosclerosis and treatments

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Purpose: Lipoprotein-associated phospholipase A2 (Lp-PLA2) predict cardiovascular events in patients with coronary artery disease (CAD) and heart failure (HF) independently of traditional cardiovascular risk factors. Aims of our study were (1) to assess relationships between Lp-PLA2 levels, cardiac disease and treatments; (2) to evaluate the association of Lp-PLA2 level with the severity of CAD and the extracoronary atherosclerosis.

Methods: 494 subjects (69.8% men, 64.2±16.7y) were recruited from a population scheduled for diagnostic coronary angiography. Lp-PLA2 mass concentration was assessed in serum with a Plac® – test turbidimetric immunoassay. Control Lp-PLA2 values were obtained in 61 healthy subjects (age 44.5±17.6y) without cardiovascular risk factors or cardiac treatment.

Results: In controls, mean Lp-PLA2 was 163±43 µg/L (men: 166±45 µg/L; women:159±39 µg/L).